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**Title:** Testing Strength of Materials Subjected to Centrifugal Force

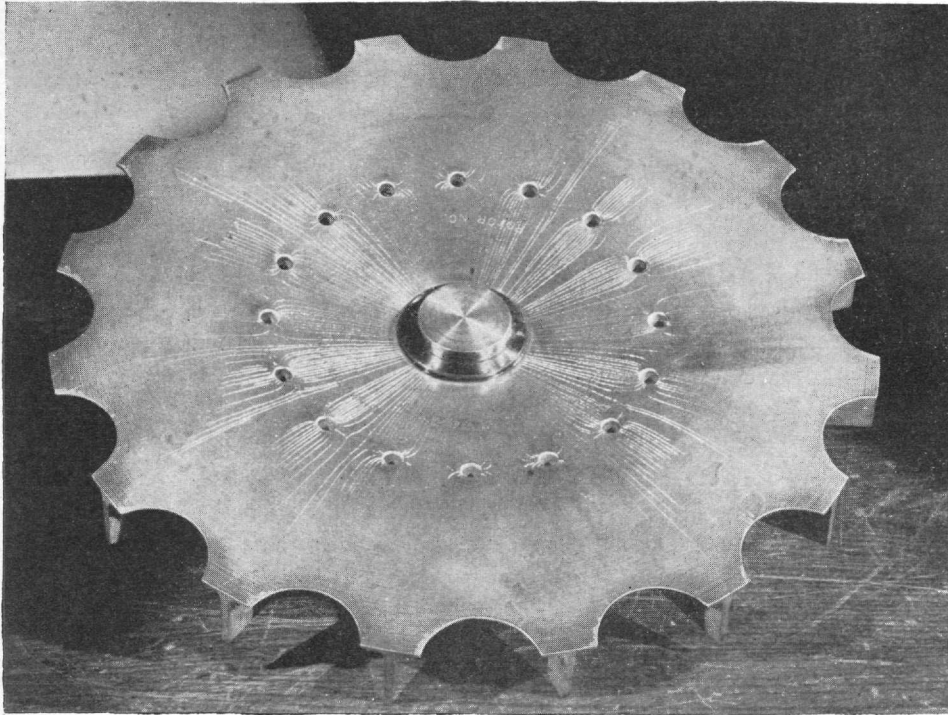
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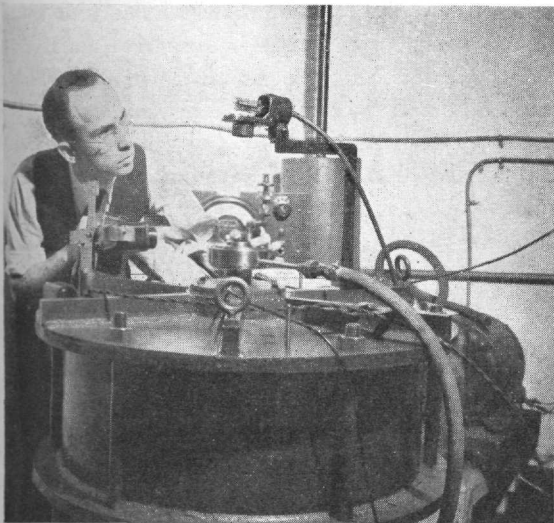


A special varnish applied to a rotor records, in fine cracks, the stresses the wheel encountered high speeds. *Courtesy General Electric Co.*

# Testing Strength of Materials Subjected to Centrifugal Force

LEWIS HULLINGER, Ch.E.II

Vacuum Testing Chamber



*Courtesy General Electric Co.*

High-altitude bombing planes require the use of a device called a turbosupercharger to be effective. A rotor of the supercharger may operate at such speed as to cause a pound mass on its outer surface to exert a pull due to centrifugal force of more than 50 tons.

A means of testing rotors which turn at such speeds now being used by General Electric research engineers causes the rotors to reach a speed of 1000 revolutions per second in a heavily walled, air-exhausted chamber. Higher speeds are possible with the elimination of resistance due to friction with the air. The shaft is driven by a small, compressed air turbine. Rotors of the supercharger may weigh up to 20 pounds, and fragments from the whirling piece may possess the energy of a projectile shot from a small naval gun capable of piercing several inches of armor-plate. Speeds are recorded by a photocell arrangement.